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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,642	01/29/2002	Albert Nazipovich Shigapov	200-1206 DP	6273

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EXAMINER
TRAN, DIEM T

ART UNIT	PAPER NUMBER
3748	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/683,642	Applicant(s) SHIGAPOV ET AL.	
	Examiner Diem Tran	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 10, 17, 18, 23, 24, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689).

Regarding claims 1, 10, 17, 24, 25, Murachi discloses a diesel exhaust gas treatment system comprising:

an oxidation catalyst (5) positioned in an exhaust gas passage of a diesel engine for converting at least a portion of NO contained in said exhaust gas to NO_2,

said oxidation catalyst comprising platinum (see col. 3, lines 66-67; col. 4, lines 1-4); and a particulate filter for receiving said exhaust gas (7) (see Figure 1); however, fails to disclose said oxidation catalyst comprising a support material being zirconia-silica. Manson teaches that it is conventional in the art, to utilize an oxidation catalyst comprising a support material being zirconia-silica (see col. 4, lines 19-26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the oxidation catalyst comprising a support material being zirconia-silica as taught by Manson in the Murachi device, for more efficiently improved the performance of the catalyst.

Regarding claim 2, Murachi further discloses said oxidation catalyst is positioned between said exhaust passage and said particulate filter (see Figure 1).

Regarding claim 3, Manson further teaches that said oxidation catalyst is combined with said particulate filter (see abstract, lines 1-9)

Regarding claims 4, 18, Murachi further discloses a second catalyst (9) positioned downstream from said particulate filter (7) (see Figure 1).

Regarding claim 23, Manson further teaches that said oxidation of particulate occurs at a temperature less than about 300°C (see col. 3, lines 55-61).

3. Claims 5, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689) as applied to claims 1, 10 above, and further in view of Andreasson et al. (WO 99/39809).

The modified Murachi system discloses all the claimed limitations as discussed in claims 1,10 above; however, fails to disclose that said second catalyst comprises a selective reduction catalyst. Andreasson teaches that it is conventional in the art, to utilize a second catalyst which comprises a selective reduction catalyst (see page 1, lines 22-25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the second catalyst comprising a selective reduction catalyst as taught by Andreasson in the modified Murachi system, for more efficiently reducing the nitrogen oxides producing from the regenerating the particulate filter process.

4. Claim 6, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689) as applied to claims 1, 10 above, and further in view of Khair et al. (US Patent 6,293,096).

The modified Murachi system discloses all the claimed limitations as discussed in claims 1, 10 above; however, fails to disclose a NOx trap positioned downstream from said oxidation catalyst. Khair teaches that it is conventional in the art, to utilize a NOx trap (22) (see Figure 1) positioned downstream from said oxidation catalyst.

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized a NOx trap positioned downstream from said oxidation catalyst as taught by Khair in the modified Murachi system, since the use thereof would have improved the efficiency for the emission control system by reducing the Nox emitted from the exhaust pipe.

5. Claim 7, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689) as applied to claims 1, 10 above, and further in view of design choice.

Regarding claims 7, 11, the modified Murachi system discloses all the claimed limitations as discussed in claims 1, 10 above; however, fails to disclose that said oxidation catalyst comprises from about 1 to 5 wt. % platinum on a support containing from about 3 to 20 wt. % zirconia, and the balance silica.

Regarding the composition range of the oxidation catalyst, it is the examiner's position that a composition range being 1-5%wt. platinum and 3-20 %wt. zirconia and the balance silica would have been an obvious matter of design choice well within the level of ordinary skill in the art, depending on variables such as catalyst structure and target gases to purify, etc. Moreover, there is nothing in the record which establishes that the claimed parameters present a novel or unexpected result (See In re Kuhle, 562 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

6. Claims 8, 9, 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689) as applied to claims 1, 10 above, and further in view of Yoshimoto et al. (JP 02-056250).

Regarding claims 8, 9, 15, 16, the modified Murachi system discloses all the claimed limitations as discussed in claims 1, 10 above; however, fails to disclose said oxidation catalyst including one or more oxides selected from the group consisting of TiO_2, P_2O_5, WO_3, B_2O_3, and Al_2O_3, with the addition of a heteropolyacid selected from $H_3PW_{12}O_{40}$ and $H_4SiW_{12}O_{40}$.

Yoshimoto teaches that it is conventional in the art, to utilize an oxidation catalyst which includes TiO_2, WO_3, with the addition of a heteropolyacid (see abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the composition of an oxidation catalyst as taught by Yoshimoto in the modified Murachi system, for improved performance of the oxidizing catalyst.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689) as applied to claim 10 above, and further in view of Cooper et al. (US patent 4,902,487) and design choice.

Regarding claims 12-14, the modified Murachi discloses all the claimed limitations as discussed in claim 10 above, however, fails to disclose that said oxidation catalyst is pretreated at 500-600°C in a gas mixture containing 500 ppm NO, 3% volume O_2 and balance N_2. Cooper teaches that it is conventional in the art, to pretreat said oxidation catalyst in a gas mixture containing 400 ppm NO, 12% volume O_2 and balance N_2 prior to positioning said catalyst in said exhaust stream (see col. 5, lines 1+).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have pretreated said oxidation catalyst in a gas mixture as taught by Cooper in the modified Murachi system, for more efficiently improved the catalyst performance.

Regarding the exact composition of the mixture gas and temperature range for pretreating the catalyst, it is the examiner's position that the gas mixture containing 500 ppm NO, 3% volume O_2 and balance N_2 and temperature range about 500-600°C would have been an obvious matter of design choice well within the level of ordinary skill in the art, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.*

8. Claims 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murachi et al. (US Patent 5,746,989) in view of Manson (US Patent 6,248,689) as applied to claim 10 above, and further in view of design choice.

Regarding claims 21, 22, the modified Murachi system discloses all the claimed limitations as discussed in claim 10 above; however, fails to disclose said conversion of NO to NO_2 occurs at a temperature of between about 175° to 350°C and about 200 to 250°C.

These limitations merely recite the operation range of virtually all oxidizing catalysts and as such, would have been obvious to one having ordinary skill in the art.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Twigg et al. (US Patent 6,294,141) in view of Manson (US Patent 6,248,689).

Twigg discloses a diesel exhaust gas treatment system comprising:

a first oxidation catalyst for convening at least a portion of NO contained in said diesel exhaust gas to NO_2 said oxidation catalyst comprising platinum (see abstract; see col. 1, lines 61-65);

a second oxidation catalyst different from said first oxidation catalyst (see abstract); wherein said first and second oxidation catalyst are positioned in combination in the exhaust gas passage of a diesel engine (see Figure 1); however, fails to disclose said first oxidation catalyst having a support material comprising zirconia /silica. Manson teaches that it is conventional in the art, to utilize an oxidation catalyst comprising a support material being zirconia-silica (see col. 4, lines 19-26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the first oxidation catalyst comprising the support material being zirconia-silica, since the use thereof is notoriously well -known in the art as a support structure for catalysts, as taught by Manson.

Conclusion

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (703) 308-6073. The examiner can normally be reached on Monday -Friday from 8:30 a.m. - 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 308-7763.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

Diem Tran
Patent Examiner
Art unit 3748

DT
September 16, 2002

THOMAS DENION
SUPERVISORY PATENT EXAMINER
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